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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,191	07/23/2003	Shin-Tson Wu	UCF-364	1256

7590 10/26/2004
Law Offices of Brian S. Steinberger
101 Brevard Avenue
Cocoa, FL 32922

EXAMINER

NGUYEN, THANH NHAN P

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 10/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/625,191	WU ET AL.	
	Examiner	Art Unit	
	(Nancy) Thanh-Nhan P Nguyen	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-22 is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/23/03</u> | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. "The cholesteric liquid crystal has a birefringence *larger than 0.08, preferably larger than 0.4*" makes the claim indefinite since the applicant does not actually point out what exactly value of the birefringence applicant means. Therefore, for the examination purpose, claim 5 should be interpreted as "The transfective cholesteric liquid crystal display of claim 1, wherein the cholesteric liquid crystal has a birefringence *larger than 0.08*".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-4 are rejected under 35 U.S.C 102(a) as being anticipated by Huang et al U.S. Patent Application Publication No. 2003/0210366.

Referring to claim 1, the transfective cholesteric liquid crystal display comprising a top substrate coated with an electrode, and a bottom substrate coated with an electrode. These two elements have to be in the liquid crystal display to drive liquid crystal display.

Further, Huang et al discloses a transfective liquid crystal display comprising a bottom substrate having a transparent transmissive region (T) and a non-transparent region (R); a slant reflector (26) means for reflecting backlight, [see figure 2]. Huang et al also discloses the transfective cholesteric liquid crystal display comprising a cholesteric liquid crystal sandwich between a top substrate and a bottom (since the twisted nematic liquid crystal is a cholesteric liquid crystal with large pitch).

Referring to claims 2-3, a slant reflector located above the cholesteric liquid crystal layer in the transmissive region, and reflected backlight into the non-transparent region, [see figure 2].

Referring to claim 4, the transfective cholesteric liquid crystal display further comprising a color filter on one side of the top substrate, [see figure 2].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al in view of Sekiguchi U.S. Patent Application Publication No. 2002/0145688.

Referring to claim 5, it was well known that to have normal behavior characteristic, the birefringence should be in the range of 0.08 – 0.12. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the cholesteric liquid crystal has a birefringence larger than 0.08 for the benefit of having normal behavior characteristic of the birefringence.

Referring to claims 6-7, as discussed above, Huang et al lacks of disclosing the non-transparent region on the bottom substrate is coated with an absorption layer to absorb light, where the absorption layer can be a material that can absorb visible light.

Sekiguchi discloses the non-transparent region on the bottom substrate is coated with an absorption layer (30) to absorb light, [see figure 4], for the benefit of improving contrast ratio when the transmission display is performed, [see page 6, paragraph 0108].

Referring to claim 8, since black dye and black paint were conventional materials to make the absorption layer for the benefit of being easy to find and cheap to use. Therefore, at the time the invention was made, it would have been obvious to a person

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of ordinary skill in the art to make absorption layer from the group consisting of black dye and black paint for the benefit of being easy to find and cheap to use.

Referring to claim 9, the transflective cholesteric liquid crystal display, wherein the ambient light and backlight both pass through the color filter twice so that they have a similar color saturation, [see Huang et al reference, figure 4, and page 3, paragraph 0059].

Referring to claim 10, the reflective and transmissive display modes have the same gap so that their response time is the same, [see Huang et al reference, figure 4, and page 3, paragraph 0059].

Allowable Subject Matter

Claims 11-17, and 18-22 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: None of prior art taught or disclosed a transflective cholesteric liquid crystal display comprising the step(s) of selecting **high birefringence liquid crystal materials** in the liquid crystal display to achieve black and white display.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Huang et al U.S. Patent Application Publication No. 2003/0210366 discloses a slant reflector located above the cholesteric liquid crystal layer in the transmissive region to reflect backlight into the non-transparent region.

Sekiguchi U.S. Patent Application Publication No. 2002/0145688 discloses an absorption layer coated the non-transparent region on the bottom substrate to absorb light.

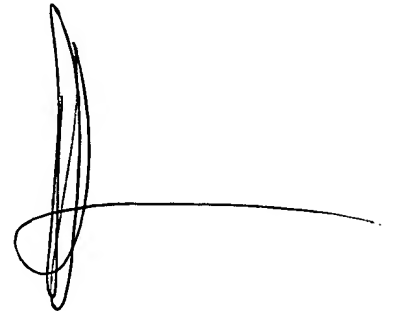
Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on M-F/9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

(Nancy) Thanh-Nhan P Nguyen
Examiner
Art Unit 2871

TN

A handwritten signature in black ink, consisting of a large, stylized 'K' followed by a horizontal line extending to the right.

KENNETH PARKER
PRIMARY EXAMINER